

CLAIM AMENDMENTS

1. (Currently Amended) A method for manufacturing a semiconductor device comprising ~~the steps of~~:

forming a first insulating film on a substrate;

forming a second insulating film on the first insulating film; and

forming a gate electrode on the second insulating film, wherein

~~the step of~~ forming a second insulating film comprises

~~a first step of~~ supplying film-forming materials and ~~making~~ adsorbing the film-forming materials ~~adsorbed~~ on the first insulating film;

~~a second step of~~ purging the film-forming materials that ~~has~~ have not been adsorbed;

~~a third step of~~ supplying oxidants to oxidize the adsorbed film-forming materials; and

~~a fourth step of~~ purging the oxidants that ~~has~~ have not contributed to oxidation;

~~the step of~~ forming ~~a~~ the second insulating film ~~is repeated~~ repeatedly, for a plurality of cycles, continuously; and

~~the purging the oxidants for a purging time in the fourth step in the~~ an initial predetermined number of the plurality cycles that is made longer than the purging time of oxidants in the ~~fourth step in following~~ cycles after the initial number of cycles.

2. (Currently Amended) The method for manufacturing a semiconductor device according to claim 1, wherein the purging time of the oxidants in the fourth step in initial predetermined number of cycles is 5 to 15 times longer than the purging time of the oxidants in the fourth step in following cycles after the initial number of cycles.

3. (Currently Amended) The method for manufacturing a semiconductor device according to claim 1, wherein ~~either~~ the second insulating film is selected from the group consisting of HfO₂, HfAlO_x, HfSiO_x, or a nitride and nitrides thereof is used as the second insulating film.

4. (Currently Amended) The method for manufacturing a semiconductor device according to claim 1, wherein the initial ~~predetermined~~ number of cycles is 10 to 20 cycles.

5. (Currently Amended) A method for manufacturing a semiconductor device comprising ~~the steps of~~:

forming a first insulating film on a substrate;

forming a second insulating film on the first insulating film; and

forming a gate electrode on the second insulating film, wherein

~~the step of forming a second insulating film comprises~~

~~a first step of supplying film-forming materials and making adsorbing~~
the film-forming materials ~~adsorbed~~ on the first insulating film;

~~a second step of purging the film-forming materials that has have not~~
been adsorbed;

~~a third step of supplying oxidants to oxidize the adsorbed film-forming~~
materials; and

~~a fourth step of purging the oxidants that has have not contributed to~~
oxidation;

~~the step of forming a the second insulating film is repeated repeatedly, for a~~
plurality of cycles, continuously; and

~~the purging the film-forming materials for a purging time in the second step in~~
~~the an initial predetermined number of the plurality cycles that is made longer than the~~
~~purging time of the film-forming materials in the second step in following cycles after the~~
~~initial number of cycles.~~

6. (Currently Amended) The method for manufacturing a semiconductor device according to claim 5, wherein the purging time of the film-forming materials in the second step in initial predetermined number of cycles is 5 to 10 times longer than the purging time of the film-forming materials in the second step in following cycles after the initial number of cycles.

7. (Currently Amended) The method for manufacturing a semiconductor device according to claim 5, wherein ~~either the second insulating film is selected from the group consisting of HfO₂, HfAlO_x, HfSiO_x, or a nitride and nitrides thereof is used as the second insulating film.~~

8. (Currently Amended) The method for manufacturing a semiconductor device according to claim 5, wherein the initial predetermined number of cycles is 5 to 20 cycles.

9. (Currently Amended) A method for manufacturing a semiconductor device comprising ~~the steps of~~:

forming a first insulating film on a substrate;

forming a second insulating film on the first insulating film; and

forming a gate electrode on the second insulating film, wherein

~~the step of forming a second insulating film comprises~~

~~a first step of supplying film-forming materials and making adsorbing~~
the film-forming materials ~~adsorbed~~ on the first insulating film;

~~a second step of purging the film-forming materials that has have not~~
been adsorbed;

~~a third step of supplying oxidants to oxidize the adsorbed film-forming~~
materials; and

~~a fourth step of purging the oxidants that has have not contributed to~~
oxidization;

~~the step of forming a the second insulating film is repeated repeatedly~~, for a
plurality of cycles, continuously;

~~the purging film-forming material for a purging time in the second step in the~~
initial ~~predetermined~~ number of ~~the plurality~~ cycles ~~that is made~~ longer than the purging time
~~in the second step in following~~ cycles ~~after the initial number of cycles for film-forming~~
~~materials~~; and

~~the purging the film-forming materials for a purging time in the second step in~~
~~the an initial predetermined number of the plurality cycles that is made~~ longer than the
~~purging time the film-forming materials in the second step in following~~ cycles ~~after the initial~~
~~number of cycles.~~

10. (Currently Amended) The method for manufacturing a semiconductor device according to claim 9, wherein

~~the purging time of the oxidants in the fourth step in initial predetermined number of~~
cycles is 5 to 15 times longer than the purging time ~~of the oxidants in the fourth step in~~
~~following cycles after the initial number of cycles~~; and

~~the purging time of the film-forming materials in the second step in initial~~
~~predetermined number of cycles is 5 to 10 times longer than the purging time of the film-~~
~~forming materials in the second step in following cycles after the initial number of cycles.~~

11. (Currently Amended) The method for manufacturing a semiconductor device according to claim 9, wherein ~~either the second insulating film is selected from the group consisting of HfO₂, HfAlO_x, HfSiO_x, or a nitride and nitrides thereof is used as the second insulating film.~~

12. (Currently Amended) The method for manufacturing a semiconductor device according to claim 9, wherein the initial ~~predetermined~~ number of cycles is 10 to 20 cycles.

13. (Currently Amended) A method for manufacturing a semiconductor device comprising ~~the steps of~~:

forming a first insulating film on a substrate;

forming a second insulating film on the first insulating film; and

forming a gate electrode on the second insulating film, wherein

~~the step of~~ forming a second insulating film comprises

~~a first step of~~ supplying film-forming materials and ~~making~~ adsorbing the film-forming materials ~~adsorbed~~ on the first insulating film;

~~a second step of~~ purging the film-forming materials that ~~has~~ have not been adsorbed;

~~a third step of~~ supplying oxidants to oxidize the adsorbed film-forming materials; and

~~a fourth step of~~ purging the oxidants that ~~has~~ have not contributed to oxidation;

~~the step of~~ forming ~~a~~ the second insulating film ~~is repeated~~ repeatedly, for a plurality of cycles, continuously; and

~~the supply~~ supplying a larger quantity of the oxidants ~~in the third step in the an~~ initial ~~predetermined~~ number of the plurality of cycles ~~is made more than the supply quantity~~ ~~of the oxidants in the third step than in following the cycles after the initial number of cycles.~~

14. (Currently Amended) The method for manufacturing a semiconductor device according to claim 13, wherein ~~the supply~~ quantity of the oxidants ~~in the third step supplied~~ in the initial ~~predetermined~~ number of cycles ~~is made 2 to 3 times more larger than the supply~~ quantity of the oxidants ~~in the third step supplied in following the cycles after the initial number of cycles.~~

15. (Currently Amended) The method for manufacturing a semiconductor device according to claim 13, wherein ~~either the second insulating film is selected from the group consisting of HfO₂, HfAlO_x, HfSiO_x, or a nitride and nitrides thereof is used as the second insulating film.~~

16. (Currently Amended) The method for manufacturing a semiconductor device according to claim 13, wherein the initial ~~predetermined~~ number of cycles is 5 to 20 cycles.

17. Currently Amended) A method for manufacturing a semiconductor device comprising ~~the steps of~~:

forming a first insulating film on a substrate;

forming a second insulating film on the first insulating film; and

forming a gate electrode on the second insulating film, wherein

~~the step of~~ forming a second insulating film comprises

~~a first step of~~ supplying film-forming materials and ~~making~~ adsorbing the film-forming materials ~~adsorbed~~ on the first insulating film;

~~a second step of~~ purging the film-forming materials that ~~has~~ have not been adsorbed;

~~a third step of~~ supplying oxidants to oxidize the adsorbed film-forming materials; and

~~a fourth step of~~ purging the oxidants that ~~has~~ have not contributed to oxidization;

~~the step of~~ forming ~~a~~ the second insulating film ~~is~~ is repeated for a plurality of cycles continuously;

~~the supply of~~ supplying the oxidants ~~in the third step~~ ~~is~~ ~~separated~~ ~~to~~ a plurality of separated times; and

~~the number of times for~~ supplying the oxidants ~~in the third step~~ ~~in the~~ ~~an~~ initial ~~predetermined~~ number of the plurality of cycles ~~is~~ ~~made~~ ~~more~~ ~~than~~ ~~the~~ a number ~~of~~ the separated times larger in number than the number of separated times ~~for~~ supplying of supplying the oxidants in the ~~third step~~ ~~in~~ ~~following~~ cycles following the initial number of cycles.

18. (Currently Amended) The method for manufacturing a semiconductor device according to claim 17, wherein the number of the separated times ~~for~~ ~~of~~ supplying the oxidants ~~in the third step~~ ~~in~~ ~~the~~ ~~initial~~ ~~predetermined~~ number of cycles ~~is~~ ~~made~~ 2 to 3 times

~~more larger than the number of the separated times for of supplying the oxidants in the third step in following cycles following the initial number of cycles.~~

19. (Currently Amended) The method for manufacturing a semiconductor device according to claim 17, wherein ~~either the second insulating film is selected from the group consisting of HfO₂, HfAlO_x, HfSiO_x, or a nitride and nitrides thereof is used as the second insulating film.~~

20. (Currently Amended) The method for manufacturing a semiconductor device according to claim 17, wherein the initial ~~predetermined~~ number of cycles is 5 to 20 cycles.